

LISTING OF THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A process for coating a substrate with a functional metal layer, comprising the steps of:
providing the substrate and a layer starting material in a vacuum system;
sputtering the layer starting material on the substrate to define a first sub-layer of the functional metal layer;
interrupting the sputtering at least once to produce a metal oxide intermediate layer on the first sub-layer, the metal oxide intermediate layer being different than the functional layer and having a thickness of 0.1 to 20 nm; and
continuing sputtering the layer starting material after the metal oxide intermediate layer is produced to define a second sub-layer of the functional metal layer, wherein the metal oxide intermediate layer increases the ~~transmittance and/or~~ reflectance of the functional metal layer.
2. (Previously presented) The process for coating a substrate as claimed in claim 1, wherein the sputtering comprises magnetron sputtering of the layer starting material.
3. (Cancelled)
4. (Previously presented) The process for coating a substrate as claimed in claim 1, further comprising repeating the sputtering, interrupting, and continuing steps with different layer starting materials so that a plurality of functional metal layers is applied as an alternating layer system comprising first functional metal layers with a low refractive index and second functional metal layers with a high refractive index.

5. (Previously presented) The process for coating a substrate as claimed in claim 4, wherein the first functional metal layer has a first metal oxide intermediate layer with a high refractive index and/or the second functional metal layer has a second metal oxide intermediate layer with a low refractive index.

6. (Currently amended) ~~The process for coating a substrate as claimed in claim 5;~~ A process for coating a substrate with a functional metal layer, comprising the steps of:

providing the substrate and a layer starting material in a vacuum system;

sputtering the layer starting material on the substrate to define a first sub-layer of the functional metal layer;

interrupting the sputtering at least once to produce a metal oxide intermediate layer on the first sub-layer, the metal oxide intermediate layer being different than the functional layer and having a thickness of 0.1 to 20 nm;

continuing sputtering the layer starting material after the metal oxide intermediate layer is produced to define a second sub-layer of the functional metal layer, wherein the metal oxide intermediate layer increases the transmittance and/or reflectance of the functional metal layer; and

repeating the sputtering, interrupting, and continuing steps with different layer starting materials so that a plurality of functional metal layers is applied as an alternating layer system comprising first functional metal layers with a low refractive index and second functional metal layers with a high refractive index,

wherein the first functional metal layer has a first metal oxide intermediate layer with a high refractive index and/or the second functional metal layer has a second metal oxide intermediate layer with a low refractive index, and

wherein the first functional metal layer and the second metal oxide intermediate layer consist of SiO_2 by virtue of silicon being sputtered in a reactive atmosphere, and the second functional metal layer and the first metal oxide intermediate layer consist of ZrO_2 by virtue of zirconium being sputtered in a reactive atmosphere.

7. (Previously presented) The process for coating a substrate as claimed in claim 1, wherein the layer starting material comprises a pure metal target.

8. (Previously presented) The process for coating a substrate as claimed in claim 7, wherein the interrupting step comprises introducing an oxygen-rich microwave plasma into the vacuum chamber so that a surface of the first sub-layer of the functional metal layer is oxidized.

9. (Previously presented) The process for coating a substrate as claimed in claim 8, wherein the pure metal target comprises chromium.

10. (Previously presented) The process for coating a substrate as claimed in claim 1, further comprising locating a plurality of substrates on a drum inside the vacuum chamber and rotating the drum so that the plurality of substrates rotate past a plurality of targets comprising the layer starting material and an oxygen source.

11-23. (Cancelled).

24. (Previously presented) The process for coating a substrate as claimed in claim 5, wherein the first and second metal oxide intermediate layers have a thickness of 0.5 to 10 nm.

25. (Currently amended) A process for coating a substrate with a functional metal layer, comprising the steps of:

sputtering a layer starting material on a substrate in a vacuum chamber to define a first sub-layer of the functional metal layer;

interrupting the sputtering of the layer starting material after forming the first sub-layer;

introducing an oxygen-rich microwave plasma into the vacuum chamber so that a surface of the first sub-layer of the functional metal layer is oxidized; and

continuing sputtering of the layer starting material after the metal oxide

intermediate layer is produced to define a second sub-layer of the functional metal layer, wherein the metal oxide intermediate layer increases the reflectance of the functional metal layer.

26. (Previously presented) The process for coating a substrate as claimed in claim 25, wherein the sputtering comprises magnetron sputtering of the layer starting material.

27. (Previously presented) The process for coating a substrate as claimed in claim 25, wherein the layer starting material comprises a pure metal target.

28. (Previously presented) The process for coating a substrate as claimed in claim 27, wherein the pure metal target comprises chromium.

29. (Cancelled).

30. (Previously presented) The process for coating a substrate as claimed in claim 25, wherein the metal oxide intermediate layer increases the transmittance of the functional metal layer.

31. (Cancelled).